

What is claimed is:

1. A drive mechanism interposed between two members to make said two members move relatively with respect to each other, at least one of said two members being guided to move linearly in a linear moving direction, said drive mechanism comprising:

a plurality of rolling cam followers that are rotatably supported on one of said two members, that are arranged in said linear moving direction, and that are spaced from each other; and

a cam that is rotatably supported on the other one of said two members and that is provided in its circumference with a cam groove in which said rolling cam followers engage, the rotation axis of said cam being arranged in the direction of said linear moving direction;

wherein said two members are made to move relatively with respect to each other by

driving said cam to rotate and making said rolling cam followers engage successively in said cam groove and move in the direction of said rotation axis.

2. A drive mechanism according to claim 1, wherein: both ends, in the direction of said rotation axis, of said cam are supported rotatably;

said cam groove is formed in the circumference of said cam throughout the length, in the direction of said rotation axis, of said cam;

said cam groove is a helical groove oriented toward

one direction in the circumferential direction of said cam;
and

before a cam follower that is engaged in said cam
groove disengages from said cam groove, an adjacent cam
5 follower engages in said cam groove.

3. A drive mechanism according to claim 2, wherein
said length, in the direction of said rotation axis, of
said cam is set shorter than a stroke of the linear
10 movement of said member.

4. A drive mechanism according to claim 1, wherein:
said cam groove is defined by a pair of inner side
surfaces opposing each other and a bottom surface
15 connecting said side surfaces; and
each of said cam followers rolls on at least one of
said side surfaces.

5. A drive mechanism according to claim 4, wherein:
20 at least two cam followers engage in said cam groove
simultaneously;

one of at least two of these cam followers rolls on
one of said pair of inner side surfaces; and

another one of said at least two of these cam
25 followers rolls on the other one of said pair of inner side
surfaces.

6. A drive mechanism according to claim 1, wherein:
a plurality of said cam followers are arranged in
30 said linear moving direction to form a cam follower row;

and

at least two of these cam follower rows are aligned next to each other in said linear moving direction.

5 7. A drive mechanism according to claim 6, wherein:

said cam groove is defined by a pair of inner side surfaces opposing each other and a bottom surface connecting said side surfaces;

each of said cam followers rolls on at least one of
10 said side surfaces;

all said cam followers belonging to a certain cam follower row roll on either one of said pair of side surfaces of said cam groove;

all said cam followers belonging to one of at least
15 two of said cam follower rows roll on one of said pair of side surfaces; and

all said cam followers belonging to another one of said at least two of said cam follower rows roll on the other one of said pair of side surfaces.

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8. A drive mechanism according to claim 1, wherein:

said cam groove is a tapered groove in which the width of the groove narrows toward the bottom in depth; and

said cam follower has a tapered cylindrical shape
25 conforming to said tapered groove.

9. A movable table unit comprising said drive mechanism according to claim 1, wherein:

one of said two members that rotatably supports said
30 cam followers is a base fixedly installed on a floor; and

the other one of said two members that rotatably supports said cam is a table supported on said base to move linearly and relatively with respect to said base.

- 5 10. A movable table unit comprising a plurality of movable table units according to claim 9, wherein the plurality of movable table units are stacked in multiple layers so that said movable table units move with respect to each other in different directions.